

**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF NEW YORK**

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THE RESEARCH FOUNDATION OF  
STATE UNIVERSITY OF NEW YORK

*Plaintiff,*

vs.

LUMINEX CORPORATION and  
LUMINEX MOLECULAR DIAGNOSTICS,  
INC.

*Defendants.*

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) **JURY TRIAL DEMANDED**  
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**COMPLAINT**

Plaintiff The Research Foundation of State University of New York (the “Research Foundation”) files this Complaint against Defendant Luminex Corporation (“Luminex”) and Luminex Molecular Diagnostics, Inc. (“LMD”) for declaratory relief, tortious interference with contract, unjust enrichment, unfair competition, patent infringement, breach of contract, and injunctive relief, and alleges the following:

**PARTIES**

1. Plaintiff Research Foundation is a nonprofit educational corporation duly organized and existing under the laws of the State of New York and having a principal office at 35 State Street, Albany, New York 12207.

2. Upon information and belief, Defendant Luminex is a corporation duly organized and existing under the laws of the State of Delaware and having a principal office at 12212 Technology Blvd., Austin, Texas 78727.

3. Upon information and belief, Defendant LMD is a Canadian corporation having a principal office at 439 University Avenue, Suite 900, Toronto, Ontario, M5G 1Y8.

### **JURISDICTION AND VENUE**

4. This Court has jurisdiction pursuant to 28 U.S.C. §1332 because of the existing diversity of citizenship between the parties and because the matter in controversy exceeds the sum of seventy-five thousand dollars (\$75,000), exclusive of interest and costs. This action also arises under the patent laws of the United States, Title 35 of the United States Code. Thus, the Court's jurisdiction is also proper under 35 U.S.C. §271, *et seq.*, and 28 U.S.C. §§1331 and 1338(a).

5. Personal jurisdiction exists generally over Luminex and LMD because they have sufficient minimum contacts with the forum as a result of transacting and doing business within the State of New York and the Northern District of New York. Personal jurisdiction also exists specifically over Luminex and LMD because of their conduct in making, using, selling, offering to sell, and/or importing products manufactured by an infringing process within the State of New York, and the Northern District of New York.

6. Upon investigation and information, products at issue are offered for sale and sold on the Luminex and LMD website at [www.luminexcorp.com](http://www.luminexcorp.com) in the State of New York and the Northern District of New York.

7. Venue is proper in this Court under 28 U.S.C. §§1391 (b) and (c), as well as 28 U.S.C. §1400(b).

### **FACTUAL BACKGROUND**

8. The Research Foundation is a nonprofit organization that is under contract with State University of New York ("SUNY") to administer sponsored programs for and on behalf of

SUNY in furtherance of research and education within the SUNY system. The Research Foundation's contractual obligations include the commercialization of intellectual property and technology developed within the SUNY system as a result of sponsored programs activity.

9. TM Technologies, Inc. ("TM Technologies") was a biotech research company located in Woburn, Massachusetts that developed various technologies in the area of DNA sequencing during the early to mid-1990s. TM Technologies licensed technology from the Research Foundation until approximately 1997 when TM Technologies' operations were shut down and the license from the Research Foundation was transferred to TM Technologies' parent company, TM Bioscience Corporation ("TM Bioscience"), based in Toronto, Canada.

10. On or about December 13, 2006, Defendant Luminex, a publicly traded biotechnology company based in Austin, Texas, entered into an agreement to acquire TM Bioscience. On March 1, 2007, the acquisition was completed and TM Bioscience became LMD. LMD is a subsidiary of Luminex that continues to operate from TM Bioscience's facility in Toronto.

**A. THE LICENSE AGREEMENT BETWEEN THE RESEARCH FOUNDATION AND TM TECHNOLOGIES**

11. On or about August 11, 1992, the Research Foundation and TM Technologies entered into a License Agreement ("License Agreement"), a true and correct copy of which is attached hereto as **Exhibit A**. Under the License Agreement, the Research Foundation granted TM Technologies "a worldwide, exclusive right and license with the right to sublicense to make, have made, use and sell Licensed Products and to sell Licensed Processes." The term "Licensed Product" is defined to mean "any product which is produced utilizing the technology identified in Patent Rights and Product Know-How," and the term "Licensed Process" is defined to mean "a process which is useful for making any Licensed Product." The term "Patent Rights" is

broadly defined to include patents and technology associated with an invention disclosure titled “A Process by Which the Sequence Dependence of DNA Reactivity Can Be Determined” (“Invention Disclosure”). Similarly, “Product Know-How” is broadly defined to mean “the knowledge gained through research and development of the invention which would enable replication of the invention.” It is clear from the License Agreement that the Research Foundation owns not only the intellectual property and know-how that existed at the time of the License Agreement’s execution, but also all information, knowledge, intellectual property, and know-how in the licensee’s possession that was developed using the originally licensed technology and know-how.

12. Based on the Invention Disclosure, TM Technologies filed a patent application in June 1993 on behalf of the Research Foundation that resulted in U.S. Patent Nos. 5,593,834 (the “‘834 patent”) and 6,027,884 (the “‘884 patent”). The Research Foundation is the owner of all rights, title, and interest in and to the ‘834 and ‘884 patents, and all other information, knowledge, intellectual property, know-how, and processes that were created as a result of research and development utilizing the originally transferred technology.

13. Under the License Agreement, TM Technologies agreed to make regular royalty payments to the Research Foundation based on sales of Licensed Products. Specifically, under Article 4.1(a), TM Technologies agreed to pay three percent (3%) of net sales of Licensed Products for five years or until the costs of any patent applications were recovered (whichever was earlier), and then pay four percent (4%) of net sales of Licensed Products thereafter. Further, under Article 4.1(b), TM Technologies agreed to pay the Research Foundation amounts that subsequently would be negotiated of up to thirty-five percent (35%) of all gross royalty income it obtained from any sublicensee. Under Article 2.2, no sublicense is valid or operative

unless it is first approved by the Research Foundation. The Research Foundation has not been asked to approve any sublicenses under the License Agreement.

14. The License Agreement also contains various reporting and notice requirements. For example, Articles 6.1 and 6.2 require TM Technologies to submit to the Research Foundation biannual reports summarizing its activities relating to the License Agreement and providing an accounting of royalty payments. Further, Article 10.1 requires TM Technologies to provide thirty days advance notice to the Research Foundation of any assignment or transfer of rights under the License Agreement. Upon such notice, the Research Foundation has the authority to either approve the transfer or assignment or object and prevent it.

15. In January 1997, TM Technologies assigned the License Agreement to its Canadian-based parent company TM Technologies Corp. with the approval of the Research Foundation. In approximately June 1997, TM Technologies Corp. changed its name to TM Bioscience. Around this time, TM Technologies' research operations were transferred to Toronto, Canada and its Woburn, Massachusetts research facility was shut down.

16. Despite the requirements of the License Agreement, the Research Foundation has not received a biannual royalty report from any of the TM entities since a report received in May 1997, which stated that no royalties were owed under the License Agreement. Further, none of the TM entities has ever made any royalty payments to the Research Foundation under the License Agreement.

#### **B. TM'S PARTNERSHIP WITH LUMINEX**

17. Without the required notice to the Research Foundation, in or around April 2001, Luminex entered into a strategic partnership with TM Bioscience in which TM Bioscience licensed to Luminex key components of TM Bioscience's microarray technology known as the

“Universal Array.” As part of the strategic partnership, Luminex made a series of “milestone payments” to TM Bioscience in 2001 totaling approximately \$900,000.00. These payments were the equivalent of sublicense royalty payments, or technology transfer royalty payments that, if Luminex had been approved by the Research Foundation as a sublicensee would have been subject to TM Bioscience’s sublicensing royalty obligations of up to 35% of the payment amounts. TM Bioscience structured its relationship with Luminex from the outset to defraud the Research Foundation to avoid paying the Research Foundation sublicensing royalties on those amounts. The Research Foundation learned only recently of the “milestone payments” to Luminex.

18. The Research Foundation also recently discovered that the “Universal Array” technology falls squarely within the terms of the License Agreement, and that TM Bioscience should have been paying royalties to the Research Foundation for products incorporating this technology.

19. Without notice to the Research Foundation, Luminex and TM Bioscience continued to work together to integrate TM Bioscience’s “Universal Array” product line with Luminex’s core technology, and to market and sell products resulting from this integration. For example, TM Bioscience and Luminex rebranded TM Bioscience’s “Tag-It” genotyping platform technology, which is covered by the License Agreement, as Luminex’s “FlexMAP” platform.

20. Incredibly, TM Bioscience represented to the public that the ‘834 and ‘884 patents are owned by TM Bioscience. Specifically, on November 22, 2007, TM Bioscience executed a Grant of Security Interest in favor of Laurus Master Fund, Ltd. in which TM Bioscience represented that it owned the ‘834 and ‘884 patents. Moreover, on February 16,

2007, TM Bioscience recorded the Grant of Security Interest in the '834 and '884 patents in the U.S. Patent and Trademark Office.

**C. LUMINEX'S ACQUISITION OF TM BIOSCIENCE**

21. The Research Foundation learned that Luminex intended to acquire TM Bioscience. Under the terms of the acquisition, which was a "pure stock" transaction valued at approximately \$40 million, each TM Bioscience shareholder received 0.06 of a share of Luminex common stock in exchange for each share of TM Bioscience's stock. Upon completion of the acquisition, the TM Bioscience shareholders owned approximately nine percent (9%) of Luminex's common stock.

22. On February 12, 2007 (approximately two weeks before the transaction closed), the Research Foundation sent a letter to TM Bioscience referencing the provision in the License Agreement requiring TM Bioscience to provide thirty days advance notice prior to any transfer of rights in the License Agreement. Additionally, the Research Foundation requested that TM Bioscience provide the delinquent biannual reports required under the License Agreement.

23. On February 20, 2007, TM Bioscience and Luminex responded to the Research Foundation's February 12 letter stating that the acquisition of TM Bioscience by Luminex was expected to close in late February 2007 (*i.e.*, within eight days). The response also represented that after the acquisition, Luminex would be responsible for performance of all of TM Bioscience's obligations under the License Agreement.

24. On March 19, 2007, the Research Foundation sent a letter to LMD outlining the unresolved issues regarding the License Agreement, including the nonpayment of royalties and failure to provide biannual reports, and setting forth other questions regarding patents and products developed by LMD's predecessor, TM Bioscience.

25. On May 31, 2007, LMD notified the Research Foundation that TM Bioscience had not commercialized any products subject to the License Agreement, and that as a result no reporting would be provided and no royalty payments were due or owing.

**FIRST CAUSE OF ACTION**

**DECLARATORY JUDGMENT**

26. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

27. There is an actual controversy between the Research Foundation, and Luminex and LMD as to whether the License Agreement has been assigned to Luminex and LMD. The License Agreement requires TM Bioscience to give the Research Foundation thirty days advance notice of any assignment or transfer of rights under the License Agreement to provide the Research Foundation an opportunity to object to the proposed assignment or transfer. TM Bioscience failed to provide such notice, and Luminex, LMD, and TM Bioscience pushed forward with the transaction and attempted to force the assignment, effectively depriving the Research Foundation of the ability to reject the assignment. Had the Research Foundation been given the required opportunity to object, it would have insisted that all reporting and royalty requirements be met before any transfer and that any transferee/assignee agree to be bound by the terms of the License Agreement as interpreted by the Research Foundation. Absent such assurances, no consent for the transfer would have been provided and the \$40 million transaction would not have closed.

28. Pursuant to Federal Rule of Civil Procedure 57 and 28 U.S.C. §§2201 and 2202, the Research Foundation seeks declarations that:



- (1) The assignment of the License Agreement from TM Bioscience to Luminex and LMD is invalid and void from its inception;
- (2) Luminex and LMD do not possess any rights, title or interest in any tangible or intangible assets that constitute, reflect, embody, or are based on or made using any Licensed Products or Licensed Processes;
- (3) All Licensed Products, Licensed Processes, know-how, and technology developed by TM Bioscience prior to TM Bioscience's acquisition by Luminex are owned by the Research Foundation, as the License Agreement has been materially breached by TM Bioscience and is terminated; and
- (4) Luminex, LMD, and/or TM Bioscience have no ownership rights in the '834 patent or the '884 patent, and the Grant of Security Interest in the '834 and '884 patents by TM Bioscience to Laurus Master Fund, Ltd. is ineffective, invalid, and void from its inception.

## **SECOND CAUSE OF ACTION**

### **TORTIOUS INTERFERENCE WITH CONTRACT**

29. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

30. Luminex was well aware that TM Bioscience was required to give the Research Foundation thirty days prior notice of any assignment of the License Agreement and that the Research Foundation did not approve of the assignment, but Luminex nevertheless ignored the Research Foundation's rights and proceeded with the closing anyway, in an attempt to force the assignment. Luminex's conduct is particularly egregious given that various features of its flagship technology, known as "xMap," fall squarely within the technology licensed by the Research Foundation to TM Bioscience under the License Agreement, yet Luminex has failed to pay any royalties to the Research Foundation for products using this technology.

31. Luminex knowingly and intentionally interfered with the License Agreement between TM Bioscience and the Research Foundation, and deprived the Research Foundation of

its rights with respect to Licensed Products and Licensed Processes under the License Agreement.

32. The Research Foundation has been damaged as a result of Luminex's interference with the License Agreement.

33. Luminex's actions were intentional, wanton, malicious, and in reckless disregard of the rights of the Research Foundation, justifying the imposition of exemplary or punitive damages.

### **THIRD CAUSE OF ACTION**

#### **UNJUST ENRICHMENT**

34. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

35. The Research Foundation entered into the License Agreement and performed its obligations for TM Bioscience, Luminex, and LMD related thereto in good faith.

36. The benefits of the License Agreement and the intellectual property and services provided by the Research Foundation thereunder were accepted by TM Bioscience, Luminex and LMD.

37. TM Bioscience, Luminex, and LMD have been unjustly enriched as a result of the intellectual property and services provided by the Research Foundation, and such unjust enrichment has been at the expense of the Research Foundation.

38. TM Bioscience, Luminex, and LMD obtained an improper and unfair benefit by acquiring TM Bioscience and all of its technologies without first obtaining the Research Foundation's consent to the assignment of the License Agreement and providing royalty payments for the products covered by the License Agreement. Thus, the Research Foundation is

entitled to damages for the reasonable value of its intellectual property and services provided under the License Agreement.

39. Luminex's acquisition of TM Bioscience was valued at approximately \$40 million. A significant portion of the consideration paid by Luminex for TM Bioscience relates to the products covered by the License Agreement, and constitutes the reasonable value of the intellectual property and services provided by the Research Foundation.

#### **FOURTH CAUSE OF ACTION**

##### **UNFAIR COMPETITION**

40. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

41. Luminex's and LMD's actions constitute unfair competition and misappropriation in violation of the Research Foundation's rights under the common law of the State of New York.

42. Luminex and LMD wrongfully misappropriated the property of the Research Foundation.

43. Luminex and LMD wrongfully misappropriated protectable information of the Research Foundation.

44. The Research Foundation's protectable information is novel and original.

45. There is an express contract to pay for use of the property and/or protectable information of the Research Foundation.

46. Luminex's and LMD's acts of unfair competition entitle the Research Foundation to recover its damages and costs of this action, together with an accounting of profits made by Luminex and LMD through their actions.

47. The willful, wanton, and malicious nature of Luminex's and LMD's conduct entitles the Research Foundation to an award of treble damages, reasonable attorney's fees, and punitive damages against Luminex and LMD.

48. Defendants' conduct has caused and is causing great irreparable injury to the Research Foundation, and unless that conduct is restrained by this Court, such conduct will be continued, and will continue to cause great irreparable injury to the Research Foundation.

49. The Research Foundation may not have an adequate legal remedy in the event monetary damage can not be properly calculated.

50. The Research Foundation is entitled to preliminary and permanent injunctive relief to prevent Luminex's and LMD's continuing acts of unfair competition.

#### **FIFTH CAUSE OF ACTION**

##### **PATENT INFRINGEMENT**

51. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

52. The Research Foundation is the owner of all rights, title, and interest in and under the '884 patent, titled "Thermodynamics, Design, and Use of Nucleic Acid Sequences," which was duly and legally issued on February 22, 2000. A true and correct copy of the '884 patent is attached hereto as **Exhibit B**.

53. The '884 patent is valid and enforceable.

54. If the assignment of the License Agreement to Luminex and LMD is invalid, then Luminex and LMD have been infringing the '884 patent by making, using, selling, offering for sale, and/or importing in or into the United States, without authority, products that infringe the

'884 patent, literally and/or under the doctrine of equivalents, including but not limited to, products relating to Luminex's "xMAP" technology.

55. In the alternative, if the assignment of the License Agreement to Luminex and LMD is held to be valid, Luminex infringed the '884 patent prior to the assignment by making, using, selling, offering for sale, and/or importing in or into the United States, without authority, products that infringe the '884 patent, literally and/or under the doctrine of equivalents, including but not limited to, products relating to Luminex's "xMAP" technology.

56. By making, using, selling, offering to sell, and/or importing in or into the United States, without authority, products that fall within the scope of the claims of the '884 patent, Luminex and LMD or Luminex has also induced infringement of the '884 patent under 35 U.S.C. §271(b), and have contributed to the infringement of the '884 patent under 35 U.S.C. §271(c). The infringing devices have no substantial non-infringing uses.

57. Upon information and belief, Luminex's and LMD's or Luminex's infringement has been willful.

58. As a direct and proximate result of Luminex's and LMD's or Luminex's acts of patent infringement, the Research Foundation has been and continues to be injured and has sustained and will continue to sustain substantial damages in an amount not presently known.

59. The Research Foundation has no adequate remedy at law against these acts of patent infringement. Unless Luminex and LMD are preliminarily and permanently enjoined from their unlawful infringement of the '884 Patent, the Research Foundation will suffer irreparable harm.

## **SIXTH CAUSE OF ACTION**

### **BREACH OF CONTRACT**

60. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

61. The License Agreement constitutes a contract between the Research Foundation and LMD's predecessor, TM Bioscience. If the assignment of the License Agreement to Luminex and LMD is invalid, then LMD remains liable to the Research Foundation for breaches of the License Agreement by its predecessor TM Bioscience, including but not limited to: TM Bioscience's breach of Articles 4.1(a)-(b) of the License Agreement by selling Licensed Products but failing to pay royalties based on such sales and by failing to pay royalties on the approximately \$900,000.00 "milestone payments" Luminex made to it in 2001; TM Bioscience's breach of Articles 6.1 and 6.2 of the License Agreement by failing to provide biannual reports summarizing activities pertinent to the License Agreement and accountings of royalties; and TM Bioscience's breach of Section 10.1 of the License Agreement by failing to give the Research Foundation thirty days prior notice of the purported assignment so that the Research Foundation could object to the assignment.

62. Further, if the assignment of the License Agreement to Luminex and LMD is valid, then Luminex and LMD have breached and continue to breach Articles 4.1(a)-(b) of the License Agreement by selling and continuing to sell Licensed Products but not paying royalties as called for in the License Agreement.

63. The foregoing breaches of contract constitute material breaches that have caused substantial damage to the Research Foundation. The Research Foundation is entitled to a

judgment against Luminex and LMD for damages caused by Luminex's and LMD's breach of contract.

64. All conditions precedent by the Research Foundation have been satisfied.

## **SEVENTH CAUSE OF ACTION**

### **INJUNCTIVE RELIEF**

65. The Research Foundation repeats and realleges the previous allegations as though fully set forth herein.

66. The Research Foundation will suffer irreparable injury if Luminex and LMD are not preliminarily and permanently enjoined because the Research Foundation will continue to be deprived of licensing revenue based on the sale of Luminex's and LMD's products. Moreover, because the license granted by the License Agreement is an exclusive license, the Research Foundation will be deprived of the opportunity to license this technology to other potential licensees. At present, these damages are largely incalculable, and therefore the Research Foundation has no adequate remedy at law.

67. The Research Foundation therefore requests that the Court enter preliminary and permanent injunctions:

- (1) Enjoining Luminex and LMD, and their agents, servants, employees, and representatives, and all others acting in combination with them from making, having made, using, or selling any Licensed Products or practicing any Licensed Processes, as those terms are defined by the License Agreement;
- (2) Requiring Luminex and LMD, and their agents, servants, employees, and representatives, and all others acting in combination with them to return to the Research Foundation all products and documentation (including paper files and electronic storage media) containing, evidencing, using, or incorporating Licensed Products or Licensed Processes;

- (3) Requiring Luminex and LMD to notify Laurus Master Fund, Ltd. in writing that they have no ownership rights in the '834 and '884 patents, and that the grant of security interest in the '834 and '884 patents by TM Bioscience to Laurus Master Fund, Ltd. is ineffective, invalid and void from its inception; and
- (4) Requiring Luminex and LMD to file the appropriate documentation in the U.S. Patent and Trademark Office and in any other office or place in which Luminex, LMD, and/or TM Bioscience improperly represented that they possess ownership rights in the '834 and '884 patents making clear that they have no such ownership rights and that the Grant of Security Interest to Laurus Master Fund, Ltd. is ineffective, invalid, and void from its inception.

### **PRAYER FOR RELIEF**

WHEREFORE, the Research Foundation requests that this Court grant the following relief against Luminex and LMD:

1. Declarations that:
  - (a) The assignment of the License Agreement from TM Bioscience to Luminex and LMD is invalid and void from its inception;
  - (b) Luminex and LMD do not possess any rights, title or interest in any tangible or intangible assets that constitute, reflect, embody, or are based on or made using any Licensed Products or Licensed Processes;
  - (c) All Licensed Products, Licensed Processes, know-how, and technology developed by TM Bioscience prior to TM Bioscience's acquisition by Luminex are owned by the Research Foundation, as the License Agreement has been materially breached by TM Bioscience and is terminated; and
  - (d) Luminex, LMD, and/or TM Bioscience have no ownership rights in the '834 patent or the '884 patent, and the Grant of Security Interest in the '834 and '884 patents by TM Bioscience to Laurus Master Fund, Ltd. is ineffective, invalid, and void from its inception.
2. Judgment that Luminex has tortiously interfered with the Research Foundation License Agreement;



3. Judgment that Luminex and LMD have been unjustly enriched at the expense of the Research Foundation;

4. Judgment that Luminex and LMD are liable to the Research Foundation for unfair competition;

5. Judgment that Luminex and LMD have infringed the '884 patent if the assignment of the License Agreement to Luminex and LMD is invalid, or alternatively, if the assignment is valid, then judgment that Luminex has infringed the '884 patent;

6. Judgment that LMD breached the License Agreement if the assignment of the License Agreement to Luminex and LMD is invalid, or alternatively, if the assignment is valid, then judgment that Luminex and LMD breached the License Agreement;

7. Injunctive relief, both preliminary and permanent:

- (a) Enjoining Luminex and LMD, and their agents, servants, employees, and representatives, and all others acting in combination with them from making, having made, using, or selling any Licensed Products or practicing any Licensed Processes, as those terms are defined by the License Agreement;
- (b) Requiring Luminex and LMD, and their agents, servants, employees, and representatives, and all others acting in combination with them to return to the Research Foundation all products and documentation (including paper files and electronic storage media) containing, evidencing, using, or incorporating Licensed Products or Licensed Processes;
- (c) Requiring Luminex and LMD to notify Laurus Master Fund, Ltd. in writing that they have no ownership rights in the '834 and '884 patents, and that the grant of security interest in the '834 and '884 patents by TM Bioscience to Laurus Master Fund, Ltd. is ineffective, invalid, and void from its inception; and
- (d) Requiring Luminex and LMD to file the appropriate documentation in the U.S. Patent and Trademark Office and in any other office or place in which Luminex, LMD, and/or TM Bioscience improperly represented that they possess ownership rights in the '834 and '884 patents making clear that they have no such ownership rights and that the Grant of Security

Interest to Laurus Master Fund, Ltd. is ineffective, invalid, and void from its inception.

8. Judgment for the Research Foundation's actual damages caused by Luminex's and/or LMD's patent infringement and breach of contract;

9. Judgment for the amount that the Luminex and LMD have been unjustly enriched;

10. Judgment for actual and exemplary damages caused by Luminex's tortious interference;

11. Judgment for actual and exemplary damages caused by Luminex's and LMD's unfair competition;

12. Injunctive relief, both preliminary and permanent, enjoining Luminex and LMD from direct infringement, active inducements of infringement, and/or contributory infringements of the '884 Patent, including, but not limited to, making, having made, using, or selling any Licensed Products or practicing any Licensed Processes;

13. Judgment that Luminex and/or LMD have willfully infringed the '884 patent and awarding the Research Foundation treble damages as provided in 35 U.S.C §284; and

14. Judgment that this is an exceptional case and awarding the Research Foundation its expenses, costs, and attorneys' fees incurred in connection with this action pursuant to 35 U.S.C. §285.

### **JURY DEMAND**

In accordance with Federal Rules of Civil Procedure 38 and 39, the Research Foundation asserts its rights under the Seventh Amendment of the United States Constitution and demand a trial by jury on all issues.

Dated: December 3, 2007      Respectfully submitted,

BY: /s/ David P. Miranda  
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**The Research Foundation of State University  
of New York**

## **EXHIBIT “A”**

## **LICENSE AGREEMENT**

This Agreement, made and entered into by and between THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK, a corporation duly organized and existing under the laws of the State of New York and having a principal office at State University Plaza, Albany, New York 12201 U.S.A. (hereinafter referred to as the Research Foundation) and TM TECHNOLOGIES INC., a corporation of Delaware having its principal office at 7800 Crossland Road, Baltimore, Maryland 21209 (hereinafter referred to as LICENSEE).

### **WITNESSETH**

WHEREAS, the Research Foundation has been assigned certain "Patent Rights" and "Product Know-How" relating to "A Process by Which the Sequence Dependence of DNA Reactivity Can be Determined" (RF Number R-896) and has the right to grant licenses under said Patent Rights and Product Know-How; and

WHEREAS, the Research Foundation desires to have the Patent Rights and Product Know-How utilized in the public interest and is willing to grant a license thereunder; and

WHEREAS, LICENSEE desires to obtain a license under the Patent Rights and Product Know-How upon the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein, the parties hereto agree as follows:

### **ARTICLE I - DEFINITIONS**

For the purpose of the Agreement, the following words and phrases shall have the following meanings.

- 2 -

1.1 "LICENSEE" shall mean TM Technologies, Inc. and any subsidiary thereof.

1.2 "Subsidiary" shall mean any corporation, company or other entity more than fifty percent (50%) of whose voting stock is owned or controlled directly or indirectly by TM Technologies, Inc.

1.3 "Patent Rights" shall mean all United States rights arising from United States Patents based upon United States Patent Applications and any continuations, continuations-in-part, divisions, reissues, or extensions of any of the foregoing and any foreign applications or registrations applicable thereto. Rights to the technology associated with "A Process by Which the Sequence Dependence of DNA Reactivity Can be Determined" (RF Number R-896) shall be included in "Patent Rights". In the event the technology will not support a viable patent application; then, for the purposes of this agreement, it shall be treated as "Product Know-How".

1.4 "Product Know-How" shall mean the knowledge gained through research and development of the invention which would enable replication of the invention. This includes research results, design drawings, and prototype construction.

1.5 "Licensed Product" shall mean any product which is produced utilizing the technology identified in Patent Rights and Product Know-How.

1.6 "Licensed Process" shall mean a process which is useful for making any Licensed Product.

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1.7 "Effective Date" shall mean the date of execution of this Agreement.

1.8 "Sub-License" shall mean the licensing of Patent Rights and Product Know-How, including the Licensed Process, in its entirety to a third party.

#### ARTICLE II - GRANT

2.1 The Research Foundation hereby grants to LICENSEE and LICENSEE accepts from Foundation a worldwide, exclusive right and license with the right to sublicense to make, have made, use and sell Licensed Products and to practice Licensed Processes.

2.2 No sublicense granted hereunder shall be valid and operative until approved by the Research Foundation, which approval will not be unreasonably withheld.

2.3 LICENSEE agrees to forward to the Research Foundation annually a copy of all reports received by LICENSEE from its sublicensees during the preceding twelve (12) month period under the sublicenses as are pertinent to a royalty accounting under said sublicense agreements.

2.4 The term of this License granted pursuant to this Agreement shall continue in full force until the end of the life of the last patent.

#### ARTICLE III - DUE DILIGENCE

3.1 LICENSEE has represented to the Research Foundation, to induce the Research Foundation to issue this license, that the LICENSEE will undertake the development, production, manufacture, marketing, and sale of licensed products and that it will commit itself to a thorough, vigorous, and diligent

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program of exploiting in the United States the Patent Rights and Product Know-How so that utilization will result therefrom. As evidence thereof, LICENSEE agrees to discuss its utilization plans with representatives of the Research Foundation at the request of the Research Foundation no more than four times during each calendar year until the sale of the first commercial product subject to royalty hereunder, and to make known to the Research Foundation for review by the Research Foundation the approximate amount of money, number and kind of personnel and time budgeted for each phase of the developments leading to such sale. LICENSEE agrees to take into consideration the results of such review with a view to improving utilization. Upon sale of the first commercial product and thereafter, the LICENSEE will continue to actively market the licensed products. The FOUNDATION agrees to accept the continued expenditure of \$500,000 U.S. per year for research and development of the technology as prima facie evidence of due diligence. LICENSEE shall provide annual reports verifying said expenditures.

3.2 In the event LICENSEE shall fail to vigorously and diligently exploit the Patents Rights with respect to a particular Licensed Product and such failure continues for three months following written notice from the Research Foundation to LICENSEE of such fact, then the Research Foundation shall, at its option, have the right to terminate the license granted hereunder with respect to such Licensed Product upon written notice to LICENSEE given within 30 days following the expiration of such three-month period. Any such termination with respect to a particular Licensed Product shall not affect any other provisions of this Agreement, all of which remain in full force and effect.



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#### ARTICLE IV - ROYALTIES

4.1 For and in consideration of the rights and privileges granted under the terms of this Agreement, LICENSEE will pay to the Research Foundation in the manner hereinafter provided to the end of the term of this Agreement or until this Agreement is terminated as hereinafter provided;

- (a) A royalty in the amount of 4% based on the net sales of the licensed product, to be reduced to 3% for the first five years, or until total recovery of patent application costs is accomplished, whichever occurs later.
- (b) A payment of up to thirty five percent (35%) of all gross royalty income obtained from any sublicensee. The percentage for each sublicense situation shall be separately negotiated prior to LICENSEE entering into sublicense;

As used herein, the phrase "Net Sales Price" shall mean LICENSEE'S billings for Licensed Products produced hereunder less the sum of the following:

- (a) Discounts allowed in amounts customary in the trade; but no more than ten percent (10%) of total sales;
- (b) Sales, tariff duties and/or use taxes directly imposed and with reference to particular sales;
- (c) Outbound transportation prepaid or allowed;
- (d) Amounts allowed or credited on returns.

No deductions shall be made for commissions paid to individuals whether they be with independent sales agencies or regularly employed by LICENSEE and on it's payroll, or cost of collections. Licensed Products shall be considered "sold" when billed out or invoiced.

4.2 No multiple royalties shall be payable because Licensed Products, their manufacture, use or sale are or shall be covered by more than one patent licensed under this Agreement.

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4.3 Royalty payments shall be paid in United States dollars in Albany, New York, or at such other place as the Research Foundation may reasonably designate; provided, however, that if the laws and regulations controlling in any foreign country prevent a royalty payment to be made in Albany, New York or at the Research Foundation's designated place or prevent a royalty payment in United States dollars, the Research Foundation agrees to accept such royalty in the form and place as permitted, including deposits by LICENSEE in the applicable foreign currency in a local bank or banks designated by the Research Foundation. Any withholding taxes levied by governments which LICENSEE or any sublicensee is required to withhold on remittance of the royalty payments shall be deducted from royalty paid to the Research Foundation. LICENSEE shall furnish the Research Foundation the original copies of all official receipts for such taxes. If any currency conversion is required in connection with the payment of royalties hereunder, such conversion shall be made by using the exchange rate prevailing at a first-class foreign exchange bank on the last business day of the calendar biannual reporting period to which such royalty payments relate.

4.4 No royalty shall be payable because of the transfer of Licensed Products by LICENSEE to an affiliate, but the royalty will become payable upon sale of the Licensed Product, by the affiliate.

#### **ARTICLE V - OTHER CONSIDERATION**

5.1 For and in additional consideration of the rights and privileges granted under this Agreement, LICENSEE will undertake the following:

- (a) LICENSEE shall file, prosecute and maintain all patent applications and patents, both U.S. and foreign, under

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FOUNDATION'S PATENT RIGHTS. Such filing, prosecution and maintenance shall be conducted by patent counsel who shall be selected and retained by LICENSEE but approved by the FOUNDATION. Such approval will not be unreasonably withheld. All decisions regarding scope of patent coverage, claim language and other matters bearing upon the substantive content of patents falling under the definition of FOUNDATION PATENT RIGHTS shall be made by LICENSEE and its patent counsel in consultation with FOUNDATION, and FOUNDATION shall be informed of the progress, status and patent decisions at least twice a year at six-month intervals from the effective date of this agreement.

LICENSEE shall pay one-hundred percent [100%] of all filing fees, costs, expenses, taxes, annuities and attorney's fees relating to the filing, prosecution and maintenance of patents and patent applications, both U.S. and foreign, falling under FOUNDATION'S PATENT RIGHTS.

- (b) LICENSEE will transfer to the Research Foundation within thirty (30) days following execution of this Agreement common stock of LICENSEE's corporation as described in exhibit A.

#### ARTICLE VI - REPORTS AND RECORDS

6.1 LICENSEE shall keep full, true and accurate books of account containing all particulars which may be necessary for the purpose of showing the amount payable to the Research Foundation by way of royalty and other consideration as aforesaid. Said books of account shall be kept at LICENSEE'S principal place of business. Said books and the supporting data shall be open not more than twice in any calendar year, for five (5) years following the end of the calendar year to which they pertain, to the inspection by a certified public accountant employed by the Research Foundation to whom LICENSEE has no reasonable objection, for the sole purpose of verifying LICENSEE'S royalty statement or compliance in other respects with this license.

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6.2 LICENSEE within sixty (60) days after March 31 and September 30 of each year, shall deliver to the Research Foundation a true and accurate report, giving such particulars of the business conducted by LICENSEE during the preceding six (6) month period under this license as are pertinent to a royalty accounting under this license. These shall include at least the following:

- (a) All Licensed Products manufactured;
- (b) All Licensed Products sold;
- (c) Total billings for Licensed Products sold;
- (d) Deductions applicable as provided in Paragraph 4.1;
- (e) Total royalties due;
- (f) Names and addresses of all sublicensees of LICENSEE;
- (g) Copies of royalty reports received from sublicensees

6.3 LICENSEE shall pay to the Research Foundation the royalties due and Payable under this Agreement at the time of delivery of said report. If no royalties are due, it shall be so reported.

#### ARTICLE VII - TERMINATION

7.1 Subject to the provisions of this Article VII as hereinafter set forth and Article III, this Agreement shall continue in force until the end of the life of the last patent.

7.2 If LICENSEE shall become bankrupt or insolvent and/or if the business of LICENSEE shall be placed in the hands of a receiver, assignee or trustee for the benefit of creditors, whether by the voluntary act of LICENSEE or otherwise, or if royalties due are unpaid, the Research Foundation shall have the right to serve notice upon LICENSEE by certified

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mail at an address designated as provided in Article XIII hereof, of its intention to terminate this Agreement within thirty (30) days after receipt of said notice of termination and the rights, privileges and license granted hereunder shall thereupon immediately terminate and neither party shall have any further rights, duties or obligations hereunder except as may have then accrued under this Agreement. In the case of unpaid royalties, the LICENSEE shall have 30 days from receipt of the notice of termination to rectify the situation by payment of said royalties.

7.3 Upon any material breach or default of this Agreement by LICENSEE other than nonpayment of royalties, the Research Foundation shall have the right to terminate this Agreement and the rights and license granted hereunder, by ninety (90) days notice by certified mail to LICENSEE. Such termination shall become effective unless LICENSEE has cured any breach or default prior to the expiration of ninety (90) days from receipt of the Research Foundation's notice of termination. In the event of such termination, the parties shall no longer have any rights, duties, or obligations hereunder subsequent to the date of such termination, except as may have then accrued under this Agreement.

7.4 LICENSEE may terminate the license granted hereunder on any specific patent under the Patent Rights at any time on six (6) months notice by certified mail to the Research Foundation.

7.5 Upon termination of this Agreement for any reason, nothing herein shall be construed to release either party of any obligation which matured prior to the effective date of such termination, and LICENSEE and/or any sublicensee thereof may, after the effective date of such termination, sell all Licensed Products, and complete Licensed Products in the process of

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manufacture at the time of such termination and sell the same, provided that LICENSEE pays to Research Foundation the royalties thereon as set forth in Article IV of this Agreement and provides the Research Foundation the reports required by Article VI hereof on Licensed Products.

7.6 Upon the expiration or sooner termination of this Agreement, any of the Licensed Products in stock and not sold by LICENSEE or its sublicensees shall be deemed as sold on the day such expiration or sooner termination becomes effective.

#### **ARTICLE VIII - UNLICENSED ACTIVITY AND INFRINGEMENT**

8.1 If LICENSEE and/or any sublicensee thereof is required to pay a royalty to others than the Research Foundation as a result of a final judgment or a settlement to which the Research Foundation consents which judgment or settlement is subsequent to the effective date of this Agreement (such others being hereinafter referred to as "Third Party Licensors") in order to make, have made, or sell a Licensed Product then, and in that event, the royalty payable by LICENSEE to the Research Foundation on such Licensed Product shall be reduced by the amount of royalty that LICENSEE and/or any sublicensee thereof shall be required to pay to such Third Party Licensor, but in no event shall the royalties payable hereunder be reduced by more than fifty percent (50%) from the royalty rate required by Article IV hereinabove. If LICENSEE avails itself of the provision of this Section, LICENSEE agrees to supply the Research Foundation with proof of the royalties paid to such Third Party Licensor.

8.2 LICENSEE and the Research Foundation shall promptly inform the

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other in writing of any infringement of which they have notice by a third party of any patents within the Patent Rights and provide the other party with any available evidence of infringement.

8.3 During the term of this Agreement, the Research Foundation shall have the right, but shall not be obligated, to prosecute at its own expense any such infringements of the Patent Rights and, in furtherance of such right, LICENSEE hereby agrees that the Research Foundation may join LICENSEE as a party plaintiff in any such suit, without expense to LICENSEE.

8.4 If within six (6) months after having been notified by Licensee of any alleged infringement pursuant to Paragraphs 8.2 and 8.3, the Research Foundation has been unsuccessful in persuading the alleged infringer to desist and has not brought, and is not diligently prosecuting an infringement action, or if the Research Foundation notifies LICENSEE at any time prior thereto of its intention not to bring suit against any alleged infringer, then and in that event only, LICENSEE may, but shall not be obligated, to prosecute at its own expense any infringement of the Patent Rights and LICENSEE may for such purposes use the name of the Research Foundation as party plaintiff; provided that such right to bring an infringement action shall remain in effect only for so long as the license granted herein remains exclusive.

In the event that the LICENSEE undertakes the enforcement and/or defense of the Licensed Patents by litigation or settlement action, LICENSEE may withhold up to fifty percent (50%) of the royalties otherwise thereafter due the Research Foundation hereunder and apply the same toward reimbursement of LICENSEE'S expenses including reasonable attorneys' fees in connection

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therewith. Any recovery of damages by LICENSEE for any such suit shall be applied first in satisfaction of any unreimbursed expenses and legal fees of LICENSEE relating to the suit or settlement thereof, and next toward reimbursement of the Research Foundation for any royalties withheld and applied pursuant to this Article VIII. The balance remaining from any such revenues shall be divided equally between LICENSEE and the Research Foundation. Upon resolution of the litigation or settlement action commenced pursuant to this paragraph, Licensee shall commence paying royalties at the full rate as specified in Article IV.

No settlement, or consent judgment or other voluntary final disposition of the suit may be entered into without the consent of the Research Foundation (which consent shall not unreasonably be withheld). LICENSEE agrees to indemnify the Research Foundation against any order for costs which may be made against the Research Foundation in such proceedings.

8.5 In the event that a declaratory judgment action alleging invalidity or noninfringement of any of the Patent Rights is brought against LICENSEE, the Research Foundation at its option, shall have the right, within thirty (30) days after commencement of such action, to intervene and take over the sole defense of the action at its own expense.

8.6 In the infringement suit as either party may institute to enforce the Patent Rights pursuant to this Agreement, the other party hereto agrees, at the request and expense of the party initiating such suit, to cooperate in all respects and to have its employees testify when requested and to make available relevant records, papers, information samples, specimens, and the like.



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8.7 The total cost of any such infringement action commenced or defended solely by the Research Foundation shall be borne by the Research Foundation and the Research Foundation shall keep any recovery or damages for past infringement derived therefrom.

8.8 The party controlling any infringement suit shall have the right to settle any claims for past infringements upon such terms and conditions as it, in its sole discretion, shall determine. LICENSEE, however, during the term of this Agreement, shall have the sole right in accordance with the terms and conditions herein to sublicense any alleged infringer under the Patent Rights.

**ARTICLE IX - BENEFIT OF LITIGATION,  
EXPIRATION OR ABANDONMENT**

9.1 In case any one or more patents, or particular claims therein within the Patent Rights expires, or is abandoned, or is declared invalid or otherwise construed by a Court of last resort or by a lower Court from whose decree no appeal is taken or certiorari granted within the period allowed therefore (herein referred to as an "Irrevocable Judgment"), then the effect thereof hereunder shall be:

- (a) that such patents or particular claims shall as of the date of expiration or abandonment or final decree of invalidity, as the case may be, cease to be included within the Patent Rights for the purposes of this Agreement and
- (b) that the construction so placed upon the Patent Rights by the Court shall be followed from and after the date of entry of the judgment or decree, and royalties shall thereafter be payable by LICENSEE only in accordance with such construction.

9.2 In the event that any of the contingencies provided for by

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Paragraph 9.1 of this Article IX occurs, the Research Foundation agrees to renegotiate in good faith with LICENSEE a reasonable royalty rate under the remaining Patent Rights which are unexpired and in effect and under which LICENSEE desires to retain a license.

#### **ARTICLE X - ASSIGNMENT**

10.1 LICENSEE may assign or otherwise transfer this Agreement and the license granted hereby and the rights acquired by it hereunder so long as such assignment or transfer are accompanied by a sale or other transfer of LICENSEE's entire business or of that part of LICENSEE's business to which the license granted hereby relates. LICENSEE shall give the Research Foundation thirty (30) days prior notice of such assignment and transfer and if the Research Foundation raises no reasonable objection to such assignment or transfer in writing within thirty (30) days after the giving of such notice and stating the reasons for such objection, then the Research Foundation shall be deemed to have approved such assignment or transfer. However, the Research Foundation shall not be deemed to have approved such assignment and transfer unless such assignee or transferee has agreed in writing to be bound by the terms and provisions of this Agreement. Upon such assignment or transfer and agreement by such assignee or transferee, the term LICENSEE as used herein shall include such assignee or transferee.

#### **ARTICLE XI - NON-USE OF NAMES**

LICENSEE shall not use the names of The Research Foundation of State University of New York, State University of New York, Health Science Center

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at Syracuse, State University of New York or University of Illinois at Chicago, nor any adaptation thereof in any advertising, promotional or sales literature without prior written consent obtained from the Research Foundation in each case, except that LICENSEE may state that it is licensed by the Research Foundation under one or more of the patents and/or applications comprising said Patent Rights.

#### ARTICLE XII - HOLD HARMLESS

Except for legal actions covered within Article VIII of this Agreement, LICENSEE shall defend or settle, at its own expense, any claim, action, suit or legal proceedings which may be brought against the Research Foundation by reason of the manufacture or distribution of Licensed Product by LICENSEE and will indemnify and hold the Research Foundation harmless from and against all damages and costs adjudged or decreed against and actually paid by the Research Foundation in any such claim, action, suit or legal proceeding in accordance with a final decree of final judgment rendered by a Court of Competent Jurisdiction in a decision, unappealed or unappealable, or any costs actually paid by the Research Foundation in connection with any settlement of any such claim, action, suit, or legal proceeding; provided, however, that the Research Foundation shall have given LICENSEE prompt written notice such claim, action, suit or legal proceeding and shall permit LICENSEE, by counsel of its own choosing, to defend or settle same, and provided further that the Research Foundation shall not have settled such claim, action, suit or legal proceeding without the consent of LICENSEE, which consent shall not be unreasonably withheld.

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**ARTICLE XIII - PAYMENTS, NOTICES  
AND OTHER COMMUNICATIONS**

Any payment, notice or other communication pursuant to this license shall be sufficiently made or given on the date of Mailing if sent to such party by certified mail, postage prepaid, addressed to it at its address below or as it shall designate by written notice given to the other party:

In the case of the Research Foundation:

Technology Transfer Office  
The Research Foundation of  
State University of New York  
P. O. Box 9  
Albany, NY 12201-0009

In the case of LICENSEE:

Attn: Mr. Mento A. Soponis  
TM Technologies, Inc.  
7800 Crossland Road  
Baltimore, MD 21208

**ARTICLE XIV - MISCELLANEOUS PROVISIONS**

13.1 This Agreement shall be construed, governed, interpreted and applied in accordance with the laws of the State of New York, U.S.A., except that questions affecting the construction and effect of any patent shall be determined by the law of the country in which the patent was granted.

13.2 LICENSEE agrees to mark the Licensed Product sold in the United States with all applicable U.S. patent numbers. All Licensed Products shipped to or sold in other countries shall be marked in such a manner as to conform with the patent laws and practice of the country of manufacture or sale.

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13.3 Licensed Products can be used by LICENSEE for its own research purposes and may be supplied to any third parties for product related research purposes without payment of royalty.

#### **ARTICLE XV - SEVERABILITY**

The parties hereto expressly agree and contract that it is the intention of neither party to violate any public policy, statutory or common laws; that if any sentence, paragraph, clause or combination of the same shall be inoperative and shall be replaced to the extent possible to accomplish their original business purpose in a valid and enforceable manner, and the remainder of the Agreement shall remain binding upon the parties hereto.

#### **ARTICLE XVI - CAPTIONS**

The captions of this Agreement are for convenience only and are not be used for interpretation or construction of this Agreement.

#### **ARTICLE XVII - ENTIRE AGREEMENT**

This Agreement supersedes and cancels all previous agreements and constitutes the entire Agreement between the parties hereto relating to the subject matter hereof. There are no terms, obligations, covenants, representations, statements or conditions, other than those contained herein. No variations or modifications of this Agreement, nor waiver of any of the terms or provisions hereof shall be deemed valid unless in writing and signed by both parties hereto.

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IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals and duly executed this license agreement the day and year first above written.

Attest:

TM TECHNOLOGIES, INC.

THE RESEARCH FOUNDATION OF  
STATE UNIVERSITY OF NEW YORK

[Signature]

Title: President

Date: August 11, 1992

[Signature]

Title: Interim Director

Date: August 11, 1992

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EXHIBIT A

For value received and subject to the terms and conditions set forth in the AGREEMENT, LICENSEE agrees to transfer to Research Foundation twenty fully paid and non-assessable shares of Common Stock of the LICENSEE'S corporation [TM Technologies, Inc.] or an undiluted 5% of the outstanding stock at the effective date of this agreement whichever is greater.

The LICENSEE further covenants that such shares will, upon issuance, be duly and validly issued, fully-paid and non-assessable.

The person or persons in whose name or names any certificate representing shares of Common Stock is issued hereunder shall be deemed to have become the holders of record of the shares represented thereby at the close of business on the effective date of the AGREEMENT.

## **EXHIBIT “B”**





US006027884A

**United States Patent** [19]

Lane et al.

[11] Patent Number: **6,027,884**[45] Date of Patent: **\*Feb. 22, 2000****[54] THERMODYNAMICS, DESIGN, AND USE OF NUCLEIC ACID SEQUENCES**

[75] Inventors: **Michael J. Lane**, Baldwinville, N.Y.;  
**Albert S. Benight**, Schaumburg, Ill.;  
**Brian D. Faldasz**, Maynard, Mass.

[73] Assignee: **The Research Foundation of the State University of New York**, Albany, N.Y.

[\*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).  
 This patent is subject to a terminal disclaimer.

[21] Appl. No.: **08/763,417**

[22] Filed: **Dec. 11, 1996**

**Related U.S. Application Data**

[63] Continuation of application No. 08/260,200, Jun. 16, 1994, abandoned, which is a continuation-in-part of application No. 08/224,840, Apr. 8, 1994, abandoned, which is a continuation-in-part of application No. 08/078,759, Jun. 17, 1993, abandoned.

[51] Int. Cl.<sup>7</sup> ..... **C12Q 1/68; C12Q 1/70; C12P 19/34; C07H 21/00**

[52] U.S. Cl. .... **435/6; 435/5; 536/24.3; 536/24.33**

[58] Field of Search ..... **435/5, 91.1, 6, 435/91.2; 536/24.3, 24.33**

**[56] References Cited****U.S. PATENT DOCUMENTS**

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*Primary Examiner*—Scott D. Priebe

*Attorney, Agent, or Firm*—Labive & Cockfield, LLP; Giulio A. DeConti, Jr.; Nicholas P. Triano, III

**[57] ABSTRACT**

A method of providing the sequence of a single stranded nucleic acid molecule, which, when hybridized to a complementary single stranded molecule, results in a double stranded (duplex) structure having a preselected value for a free energy parameter.

**6 Claims, 11 Drawing Sheets**

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FIG.1A

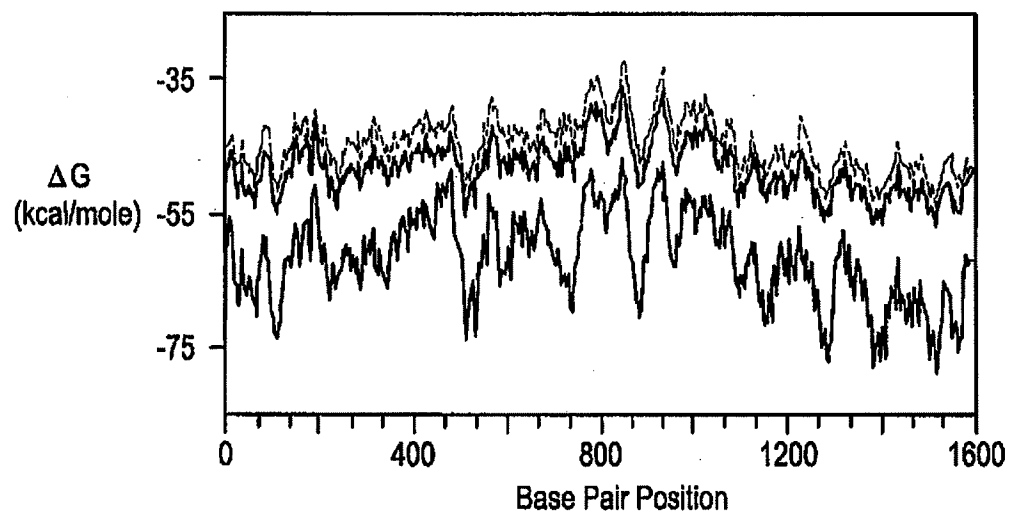
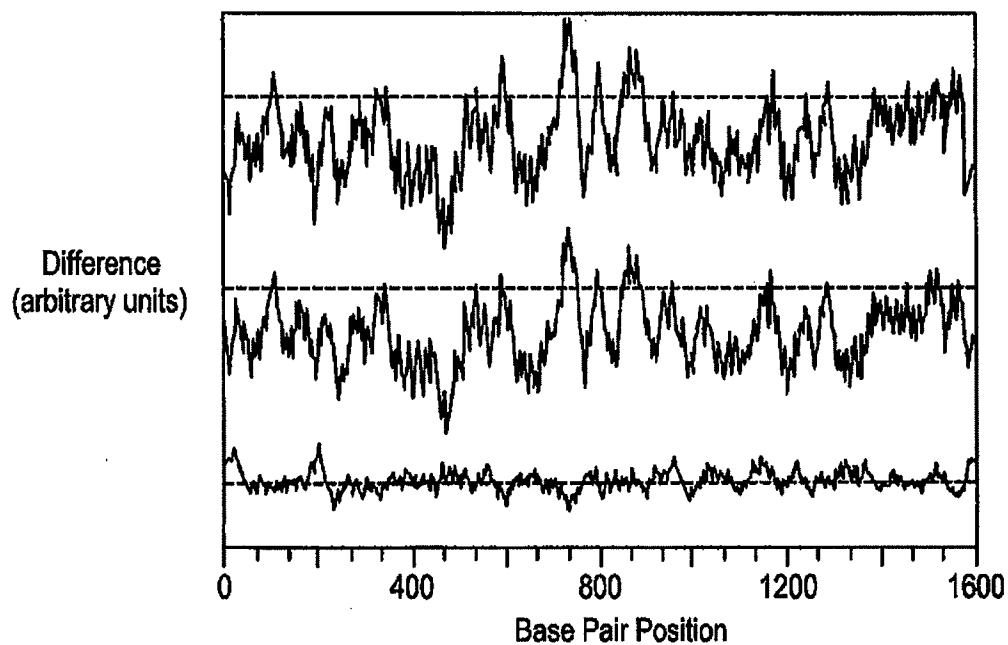


FIG.1B



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FIG.2A

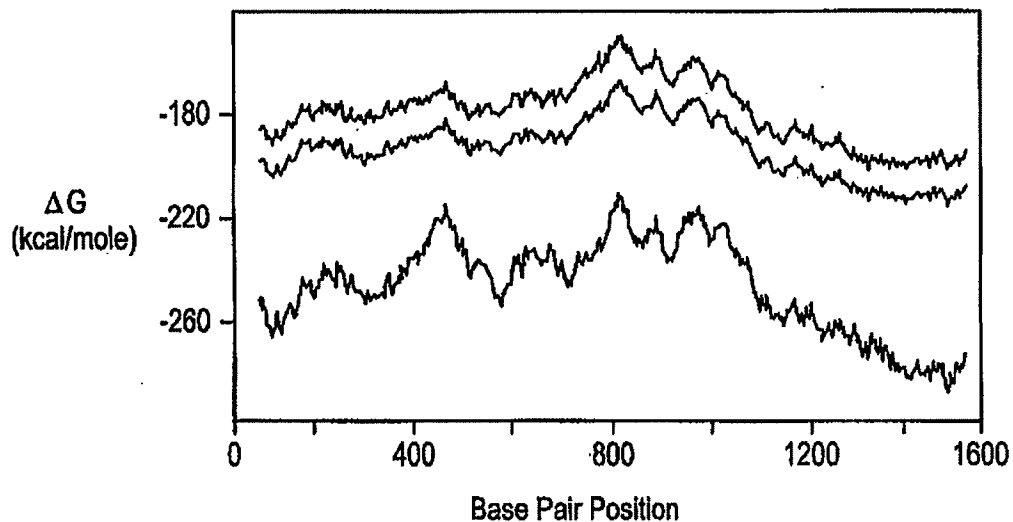
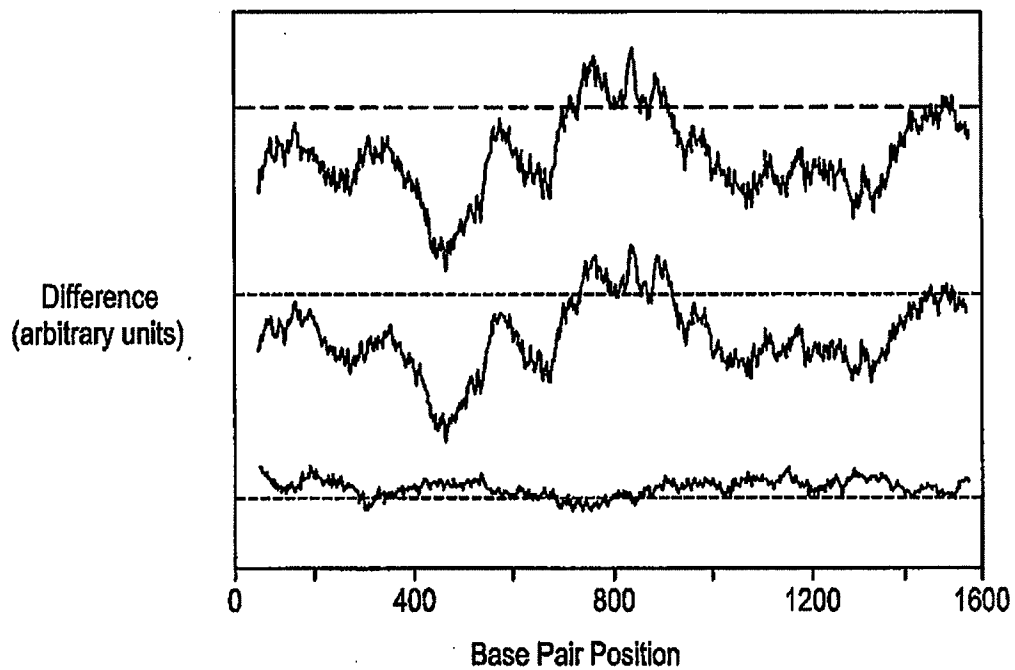


FIG.2B



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## FIG.3

MOLECULE	ABBREVIATION
AAAAAGCTTTTT TTTTTCGAAAAA	(AA) <sub>2</sub>
ATATAGCTATAT TATATCGATATA	(AT) <sub>2</sub>
AAAAAAAGCTTTTTTTT TTTTTTTCGAAAAAAA	(AA) <sub>3</sub>
ATATATAGCTATATAT TATATATCGATATATA	(AT) <sub>3</sub>
AAATATAGCTATATTT TTTATATCGATATAAA	(AA)(AT) <sub>2</sub>
AAAAAAAAAGCTTTTTTTTTT TTTTTATATCGAAAAAAAAA	(AA) <sub>4</sub>
ATATATATAGCTATATATAT TATATATATCGATATATATA	(AT) <sub>4</sub>

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FIG.4A

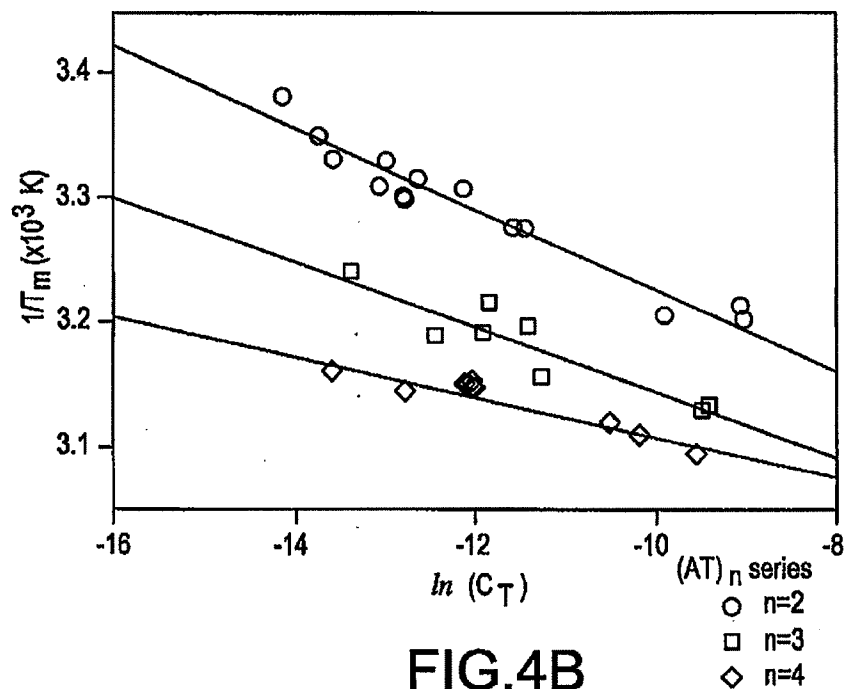
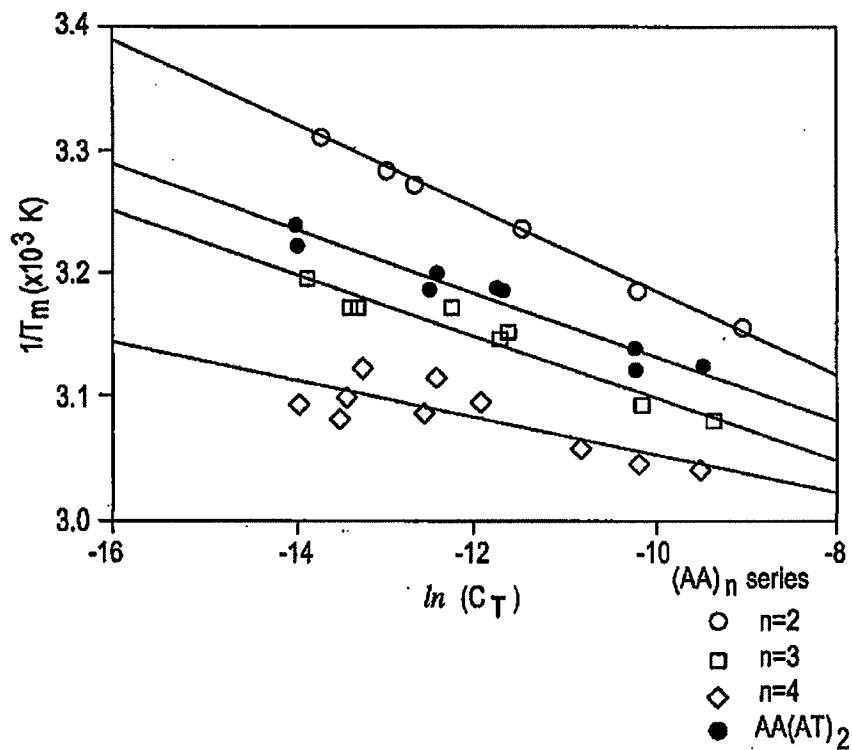


FIG.4B



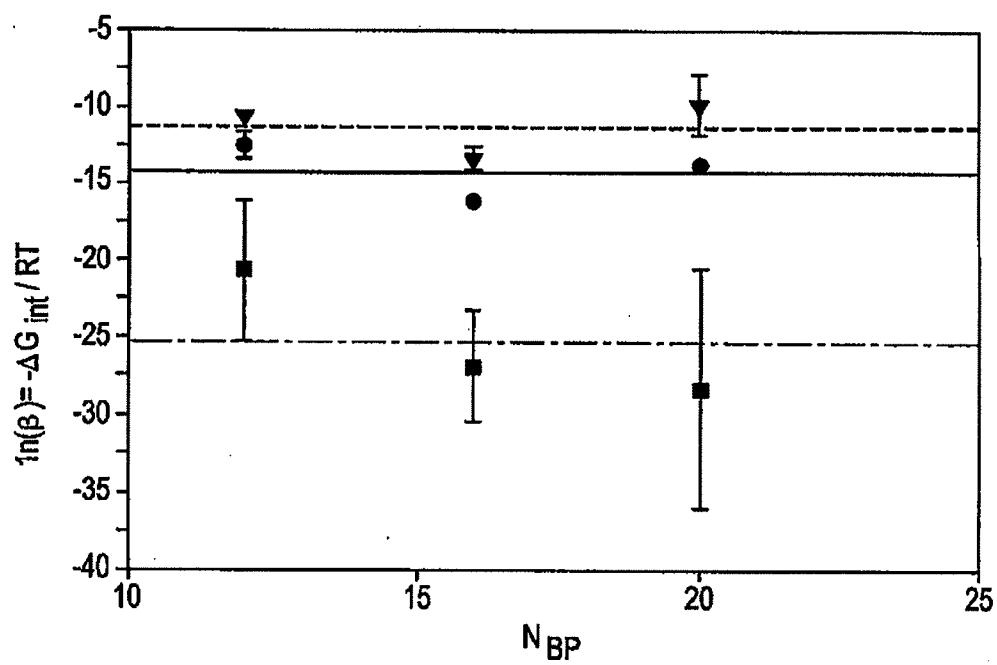
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FIG. 5



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FIG. 6B

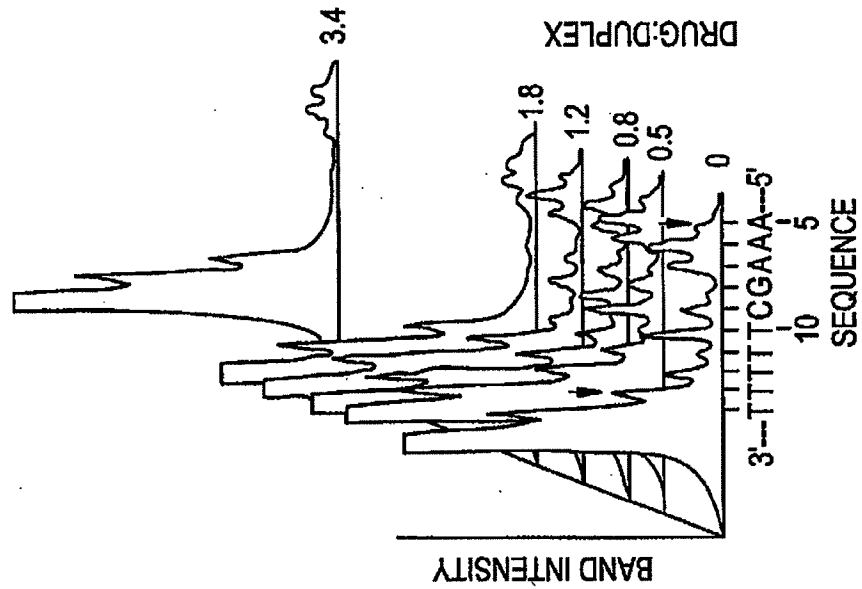
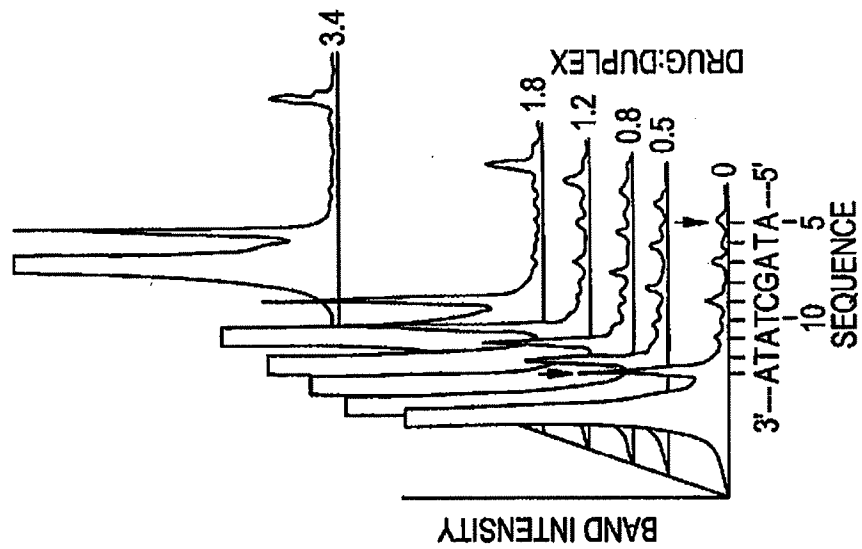


FIG. 6A



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FIG. 7

Hexadecamer-Act D Complex

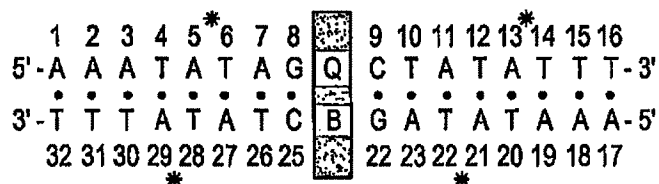


FIG. 7A

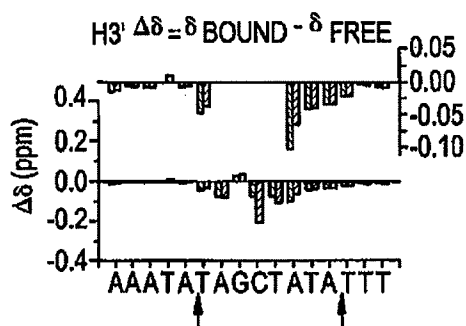


FIG. 7C

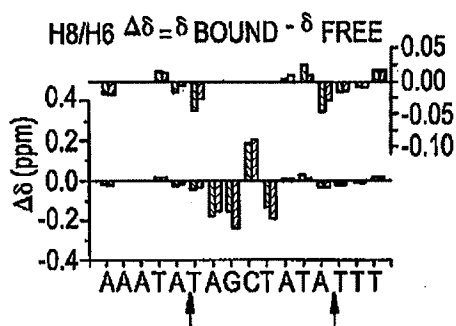


FIG. 7B

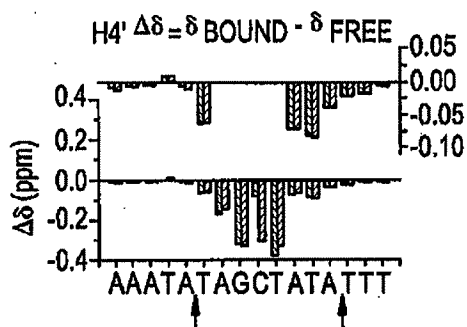
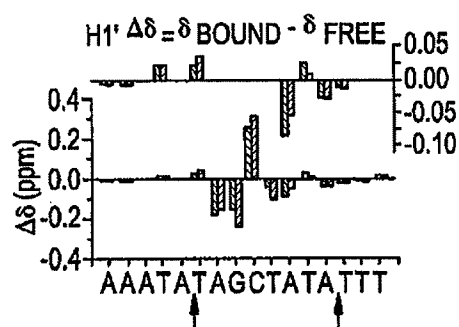


FIG. 7D



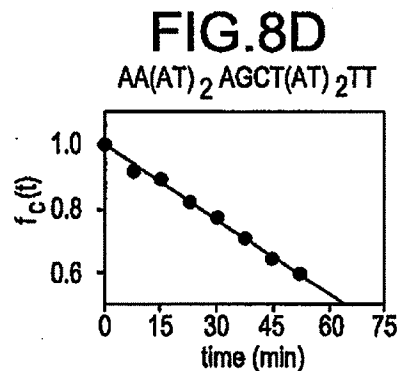
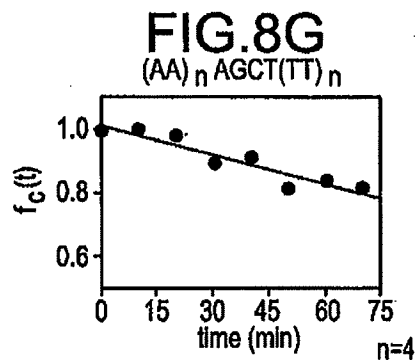
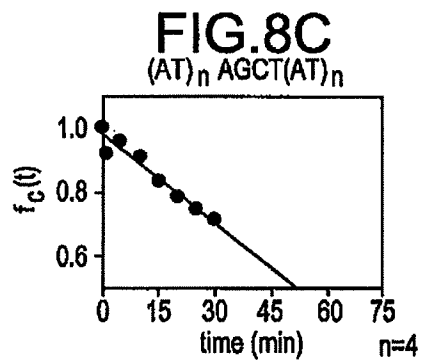
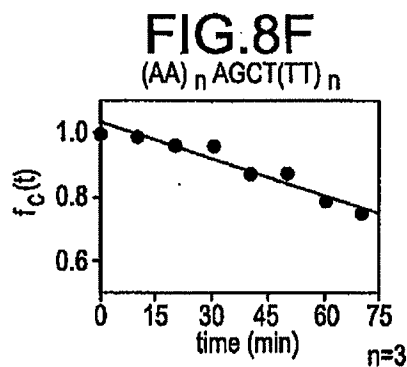
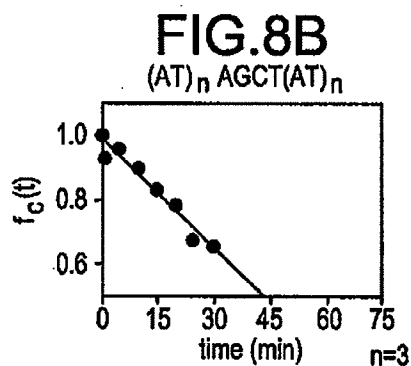
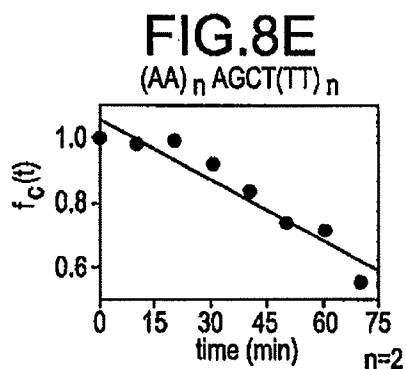
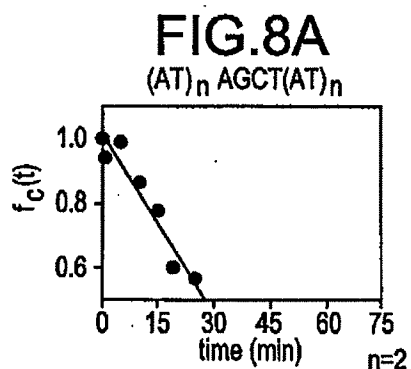


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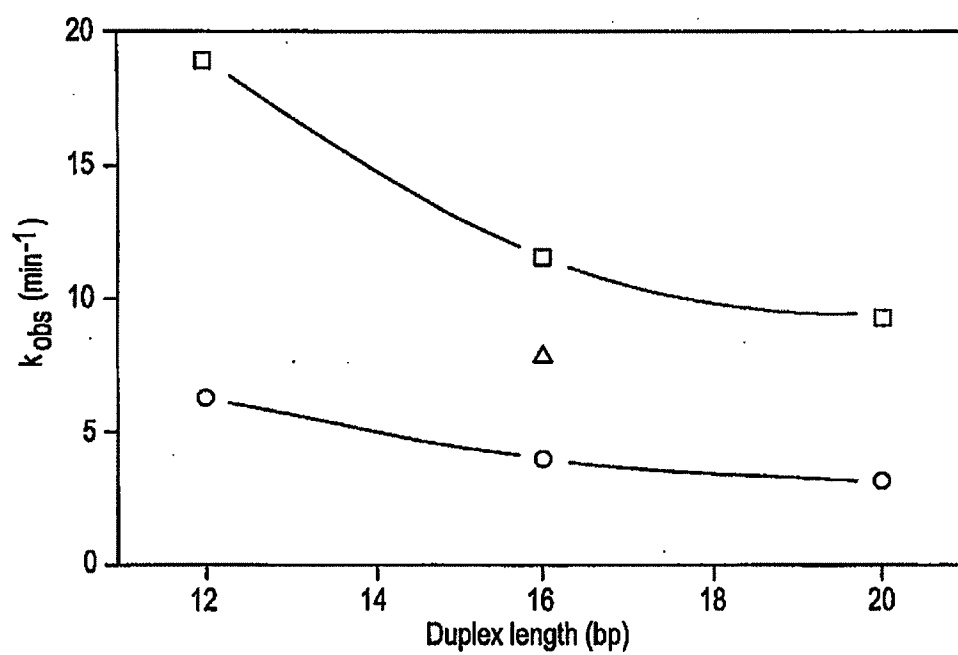
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FIG.9



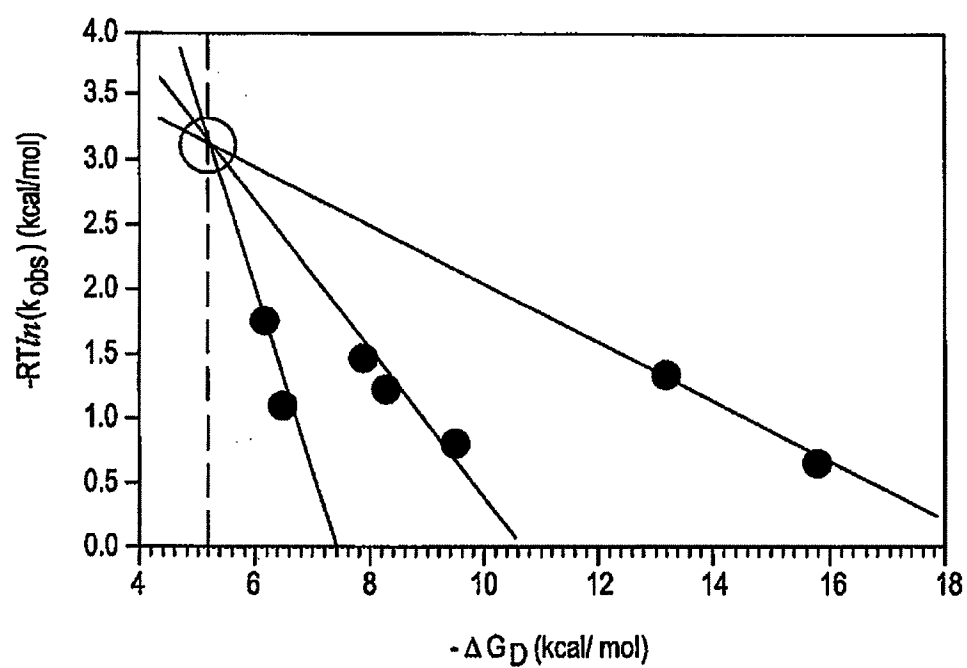
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FIG.10



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FIG.11

